



[Home](#) › [Methodologies](#) › [Weekly Payroll Jobs methodology](#) › Week ending 11 September 2021



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Weekly Payroll Jobs and Wages in Australia methodology

Reference period Week ending 11 September 2021

Released 7/10/2021

On this page

[How data are collected](#)

[How data are processed](#)

[How data are released](#)

[Methods review](#)

[Data limitations and revisions](#)

[Differences to labour force employment statistics](#)

[History of change](#)

[Glossary](#)

[Abbreviations](#)

The following sections have been updated in this release:

- How data are processed: Updating characteristic variables, updated to reflect addition of sector variable
- Methods review: Section added to incorporate method change in Update to imputation retention

How data are collected

Source

The Australian Taxation Office (ATO) receives payroll information from employers with Single Touch Payroll (STP) enabled payroll and accounting software each time the employer runs its payroll. The ATO provides selected employer and job level data items from the STP system to the ABS for the production of statistics.

Scope and coverage

The scope and coverage of these estimates are largely defined and constrained by the characteristics of the data sources from which these estimates are produced. As such, users should note that not all jobs and wages in the Australian labour market are captured within these estimates.

Payroll jobs

Payroll jobs as reported to the ATO through STP are in scope of these estimates. All payroll jobholders regardless of age or Australian residency status are included. Persons reported via STP must hold either a Tax File Number (TFN) or an Australian Business Number (ABN).

A payroll job is a relationship between an employee and their employing enterprise, where the employee is paid in the reference week through STP-enabled payroll or accounting software and reported to the ATO. Where an employee is paid other than weekly, the established payment pattern is used to include payroll jobs paid in weeks outside the reference week.

Payroll jobs reported via STP exclude owner managers of unincorporated enterprises (OMUEs), which are more prevalent in the Construction and Agriculture, forestry and fishing industries.

Employers with 20 or more employees (large employers) commenced transition to STP reporting on 1 July 2018. Employers with less than 20 employees (small employers) began transitioning to STP on 1 July 2019. Any reporting concessions that were made available for small employers ended on 30 June 2021. At the time of this release, almost all large employers and eligible small employers are reporting through STP.

In addition, payroll jobs reported in the Defence Industry (ANZSIC Class 7600) are excluded from these estimates by the ABS to better align with other [Labour estimates](https://www.abs.gov.au/ausstats/abs@.nsf/Lookup/by%20Subject/6150.0~Oct%202019~Main%20Features~Australian%20Labour%20Account%20Concepts~4) (<https://www.abs.gov.au/ausstats/abs@.nsf/Lookup/by%20Subject/6150.0~Oct%202019~Main%20Features~Australian%20Labour%20Account%20Concepts~4>).

Wages

The STP reported wages associated with each payroll job are in scope of these estimates.

Wages are gross amounts, prior to taxation and deductions and include:

- salary payments and allowances,
- labour hire payments and foreign income,
- the value of payments in kind (where a fringe benefit amount is recorded),
- bonuses where they are reported in the same field as normal payments.

The total wages concept broadly aligns with the [Australian System of National Accounts \(https://www.abs.gov.au/AUSSTATS/abs@.nsf/Lookup/5216.0Glossary12015?OpenDocument\)](https://www.abs.gov.au/AUSSTATS/abs@.nsf/Lookup/5216.0Glossary12015?OpenDocument) (ASNA) definition of wages and salaries, with the exception of payments to employee's superannuation and severance and termination payments which are excluded.

More specifically, the following STP reported income items are included in the production of wages estimates;

- gross income amount (including bonuses),
- allowance income,
- fringe benefit amount (reportable, taxable),
- fringe benefit amount (reportable, tax exempt),
- other income (not specified),
- foreign income amount including tax exempt income,
- Community Development Employment Project income.

Other data sources

The STP data are enhanced through combining other administrative data held by the ABS (also sourced from the Australian taxation system).

Sex, age and residential geography variables are primarily sourced from Client Register data (supplied by ATO to the ABS as part of the transfer of Personal Income Tax data). Sex can only be sourced from Client Register data. When age and residential geography are not available from Client Register data, they are sourced from STP data. The ABS receives annual snapshots of de-identified Client Register data from the ATO, for use in the production of statistics.

Industry of activity, sector and employment size variables of the employing business are sourced from the ABS Business Register (ABSBR).

How data are processed

To produce estimates from STP data, several processes and treatments are applied.

Calendarisation

The STP data are reported on a cash basis (the time when the payment was made) rather than an accrual basis (the time when the payment was earned). Production of real time estimates require the conversion of STP data from a cash basis to an accrual basis. This is done through a “calendarisation” method. This method breaks down all records to a common period (daily), which allows the data to be aggregated and analysed for any longer period (e.g. weekly).

The calendarisation method includes the following steps:

- calculation of the periodicity (payment frequency) using the start and end date of the payment period,
- calculation of a daily pay rate by dividing the total payments by the payment frequency (for example, weekly pay is divided by seven), and
- an adjustment to the periodicity for a job to exclude the days before commencement (or after termination), where the start or termination date for a job occurs within the payment period.

Accrual of end of financial year payments

Towards the end of the financial year, unadjusted STP data includes higher than usual week-to-week changes in total wages paid. Some employers report lumped fringe benefits tax (FBT) payment amounts for eligible employees at the end of the financial year. This is most evident in the Health care and social assistance industry. To reduce the reporting variability introduced by these payments, the ABS has determined and applied an adjustment factor to accrue reported FBT amounts across the relevant financial year wages series. It is applied to all records which include reportable FBT amounts, not just those in the Health care and social assistance industry.

This adjustment factor has been applied for the 2020-21 financial year, but will be revised at the conclusion of each financial year using business reported data to ensure it remains current. This treatment enhances the existing calendarisation methodology and is consistent with the definition of wages and salaries used in the Australian System of National Accounts. More information about employer reporting of FBT is available from the ATO website.

This adjustment methodology is not possible for other extraordinary payments (such as bonuses) where they are included with the wages data in the period they are paid. Bonuses are not currently readily distinguishable from the wages component of the STP job level dataset (unlike reportable FBT amounts) and can be paid at any time.

Imputation

In addition to cash reporting, extracted STP payment data for a specific week cycle may be incomplete due to:

- different business reporting habits;
- different pay frequencies; and
- the lag between the reference week and the release of estimates.

To produce reliable weekly statistics, an imputation method is applied to account for incompleteness. Imputation includes the following considerations:

- Imputation is not applied where no established pattern of payment exists to enable forward extrapolation. For example, a small proportion of employees paid on an ad hoc basis.
- If an employee has not yet had payment data reported and they have not been flagged for termination, it is assumed that their payment status is consistent with their previous reporting record. The previous calculated daily rate will be imputed for the current period.
- If an employee has no payment data for a second consecutive pay period, it is assumed that their employment has been terminated. No further forward imputation is applied.

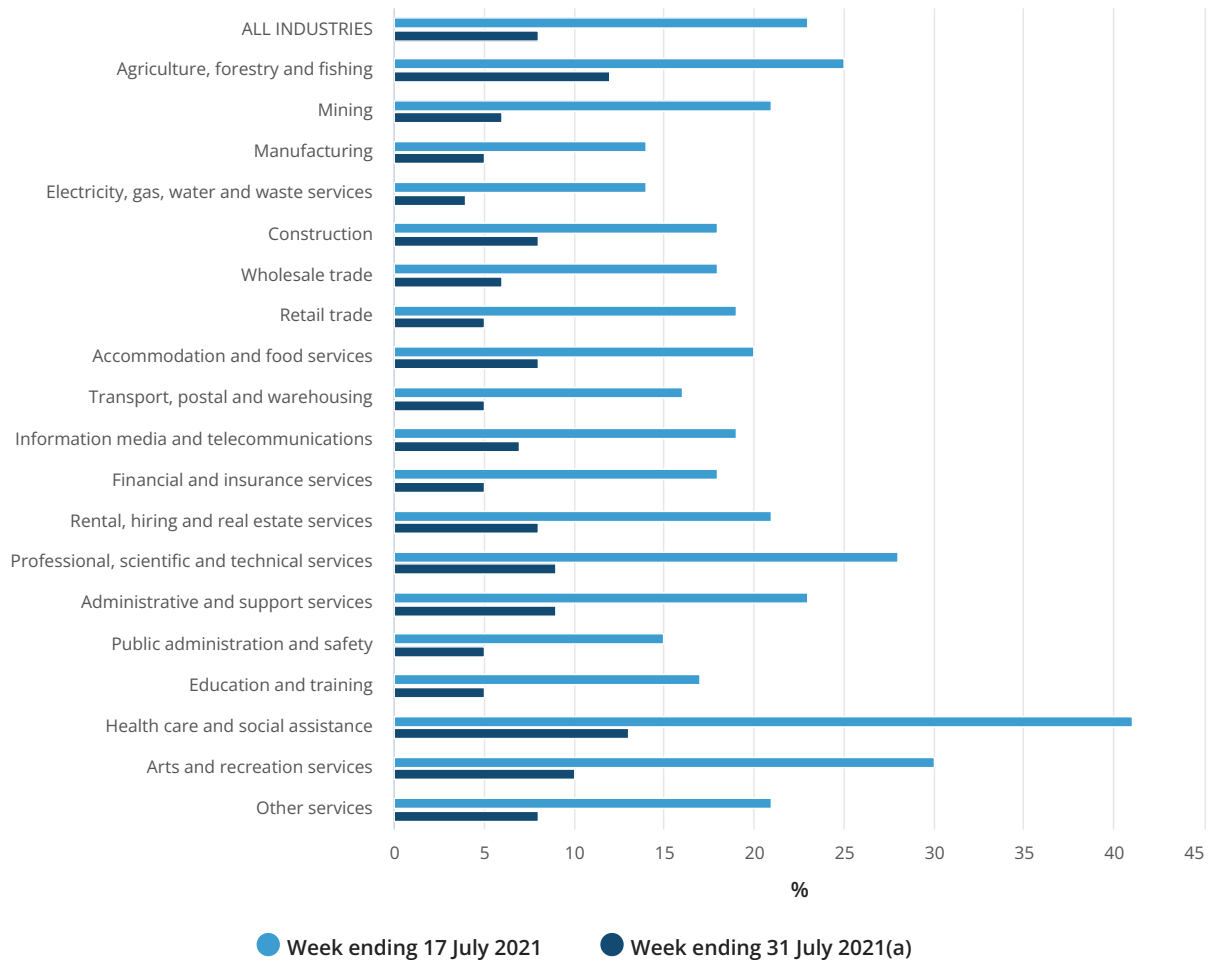
Imputed data remains in place until 16 weeks have elapsed, to account for any lags in business reporting.

- No imputation is applied for new employees without historical payment information, until a pattern can be determined. This means that there can be a lag before a new payroll job appears in the data (after their initial pay period). The lag is longer for new jobs with employers who have less frequent payment and reporting periods. No adjustment is applied to account for this new job lag.

Prior to the 26 August 2021 release, the lag between the reference and release date was around 17 to 19 days requiring an imputation rate of around 20-25% in the most recent week's data (which was around 75-80% complete). STP reported data can take several months to be fully complete at a specific reference date, due to infrequent and quarterly STP reporters.

From the 26 August release, the lag between the reference and release date has extended to around 26 days. This additional week's lag allows the receipt of more complete data (around 90%), resulting in an imputation rate of around 10% in the most recent week's data. The following graph compares the imputation rates for the latest week of data in the releases of 5 August (19-day lag) and 26 August 2021 (26-day lag).

Imputation rate by industry, for 19 and 26-day lag releases



a. The additional 7-day lag in the data used to compile estimates reduces the imputation rate as more complete business data has been received.

The industries to see the greatest reduction in imputation rate between these two releases were:

- Health care and social assistance,
- Arts and recreation services, and
- Professional, scientific and technical services.

An ongoing reduction in the level of imputation in the latest week should translate to a smaller range of revisions and increased stability. The overall magnitude of revisions will continue to be dependent on underlying changes in data, described in more detail in the [Data limitations and revisions \(/methodologies/weekly-payroll-jobs-and-wages-australia-methodology/week-ending-11-september-2021#data-limitations-and-revisions\)](/methodologies/weekly-payroll-jobs-and-wages-australia-methodology/week-ending-11-september-2021#data-limitations-and-revisions) section.

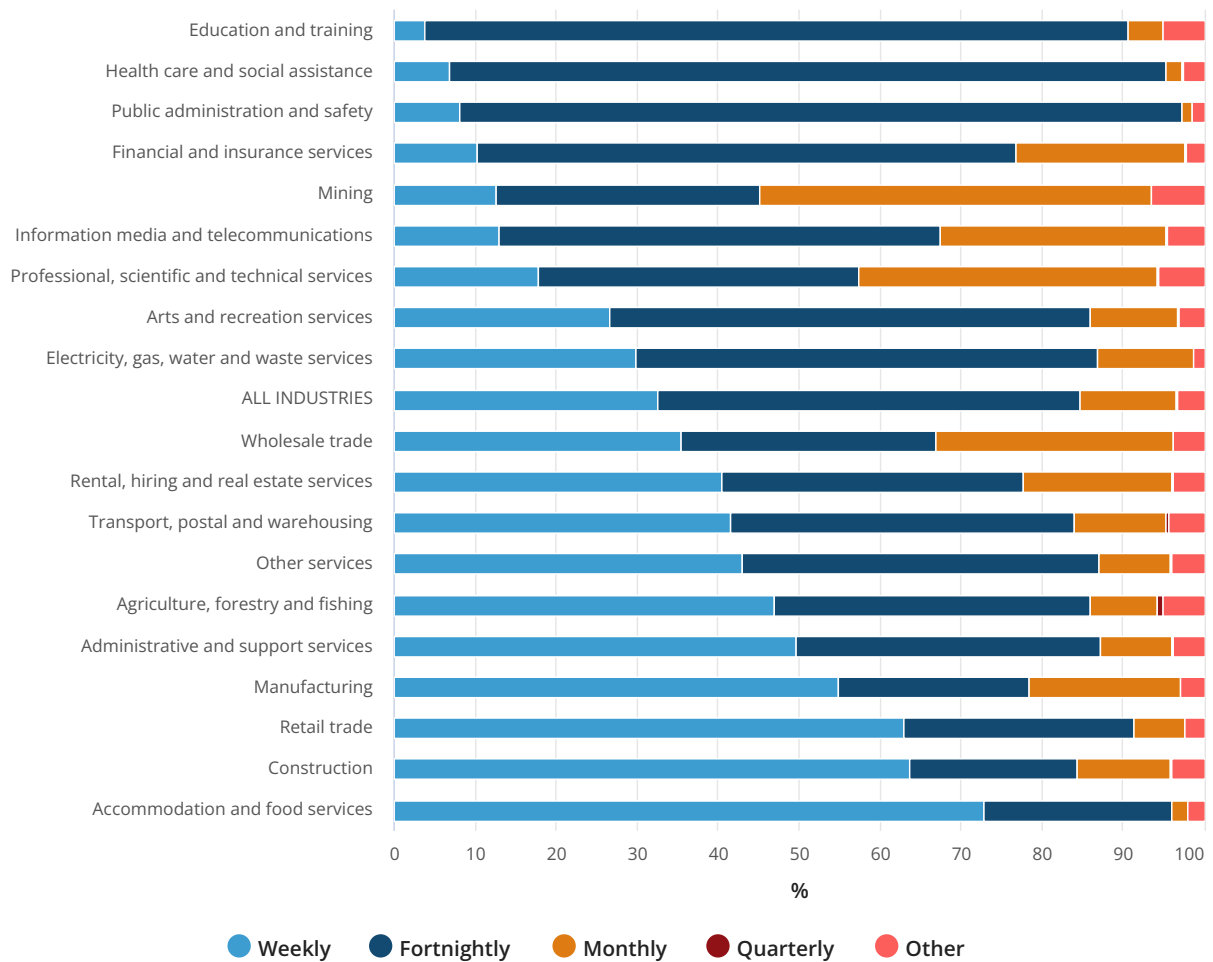
In this release, the imputation retention threshold has been updated from 8 pay periods to 16 weeks and applied across all historical data. For more information, see Update to imputation retention in [Methods review \(/methodologies/weekly-payroll-jobs-and-wages-australia-methodology/week-ending-11-september-2021#methods-review\)](/methodologies/weekly-payroll-jobs-and-wages-australia-methodology/week-ending-11-september-2021#methods-review).

Pay frequency influence

In each reference week, business reported data is included for almost all weekly paid employees, most employees paid fortnightly and some employees paid monthly. For example, a business with a fortnightly payroll will only report payments in alternate weeks in the STP dataset. As at the end of March 2021, the data indicated that 33% of employees are paid weekly; 52% are paid fortnightly; 12% are paid monthly; and 3% are paid quarterly or infrequently.

While a fortnightly pay frequency is the most common amongst all industries, the dominant pay frequency varies across industry (seen in the graph below), which can affect the level of imputation for each industry in any given week.

Proportion of reported pay frequency by industry



Ranked by ascending weekly pay frequency, for the week ending 27 March 2021.

Aggregation

Once STP data are converted via the calendarisation method and imputation is applied, the data are aggregated for each week (ending Saturday) to produce:

- total payroll jobs, which is the average of the 7 days of payroll job counts, and
- total wages, which is the sum of all daily wages for the week, except for employees who

cease a job during the week where only the wages for the days worked are included.

Suppression

To protect the confidentiality of individuals, data are subject to a suppression process. Data suppression is generally applied to finer level estimates, where a smaller number of individuals contribute to the estimate (such as sub-state indexes).

Creation of indexes

Estimates are supplied as indexes to provide an indication of movements rather than level estimates. In order to compare changes over time, the week in which Australia recorded its 100th confirmed coronavirus case (i.e. the week ending 14 March 2020) is used as the reference period for constructing the indexes and given an index value of 100.0. These indexes differ from the ABS' suite of price indexes (including the Wage Price Index) which measure changes in price over time unaffected by quality or quantity and should not be directly compared.

Indexes allow comparison of data between two points in time, the points in time can be adjacent (this week and the previous week) or many weeks apart. Movements in the index from one period to another can be expressed as either points or percentage change and these are rounded to one decimal place. The following example illustrates the method of calculating changes in index points and percentage changes between any two periods:

	Index number
Week ending 06 February 2021 for SA4: Melbourne - Inner	99.1
Less week ending 09 January 2021 for SA4: Melbourne - Inner	94.8
Change in index points	4.3
Percentage change	$4.3/94.8 \times 100 = 4.5\%$

The following example illustrates the method of calculating a recovery percentage change between any two periods:

	Index number
National payroll jobs index for week ending 14 March 2020	100
Less National payroll jobs index for week ending 18 April 2020	91.6
Payroll jobs lost from 14 March index value (denominator)	8.4
National payroll jobs for week ending 9 January 2021	97.6
Less National payroll jobs index for week ending 18 April 2020	91.6
Recovery index points (numerator)	6.0
Recovery percentage change	$6.0/8.4 \times 100 = 71.4\%$

Updating characteristic variables

Weekly payroll jobs and wages indexes are available for a combination of employer characteristics (industry, employment size and sector) and jobholder characteristics (state and region of residential address, age, and sex). These characteristics are populated from variables found in the snapshots of the ABS Business and ATO Client Registers. These Registers are described in more detail in the [Glossary \(/methodologies/weekly-payroll-jobs-and-wages-australia-methodology/week-ending-11-september-2021#glossary\)](#) and [How data are collected \(/methodologies/weekly-payroll-jobs-and-wages-australia-methodology/week-ending-11-september-2021#how-data-are-collected\)](#) (Other data sources) sections of this release.

The snapshot vintage, frequency of update and refresh timing can differ and are described further below.

Employer variables

Up until the 6 July 2021 release, a March 2020 ABS Business Register (ABSBR) snapshot was used to determine the industry and employment size of a jobholder's employer. In the 6 July 2021 release, the March 2021 ABSBR snapshot was used to update employer variables back to the week ending 29 August 2020 (also known as the transition point). Some indexes of employer characteristics have a visible change in levels at the transition point. The ABS is working on a method to smooth this change, which will be applied in a future release. Consequently, users should exercise caution when comparing week-on-week change and index levels for industry and employment size across the transition point. More information on the changes around the transition point are documented in a historical [Methods review \(/methodologies/weekly-payroll-jobs-and-wages-australia-methodology/week-ending-17-july-2021#methods-review\)](#) section.

Once an employers' payroll job is allocated to an employer characteristic it is held constant

until the next snapshot, when missing values will be populated and existing values refreshed (if they have changed). Employers whose employer characteristics can't be linked or derived from the latest ABSBR snapshot are assigned an 'unknown' category for the relevant employer characteristic. As the March 2021 ABSBR snapshot ages, the proportion of records with unknown industry and employment size is expected to increase. The ABS anticipates that snapshots will be refreshed on at least an annual basis and applied around the end of August, to enable a regular update of employer characteristics and minimise the number of unknowns.

Employer characteristics have been expanded to include a public/private sector variable throughout the time series. The release of 7 October 2021 includes the first set of sector indexes, payroll jobs by selected private sector industries. Private sector indexes are included for industries where the payroll jobs in the private sector are more than 80% of all payroll jobs. Industries not included in the sector tables are Electricity, gas, water and waste services; Public administration and safety; Education and training; and Health care and social assistance.

It is intended that both private and public sector by industry indexes and private and public sector by state and territory indexes will be released in the future. The current method of applying adjustments, for anomalous reporting and commencement of businesses reporting through STP, does not differentiate on sector. While there is a small impact in indexes where the private sector dominates, the adjustment method requires enhancement to allow for more granular application and more accurate representation of change for both private and public sector indexes (for all industries and at state and territory levels).

Jobholder variables

Jobholder variables in these estimates were initially sourced from the mid-2019 Client Register snapshot. From the 13 April 2021 release, jobholder variables such as date of birth (from which age is derived), sex and residential geography (including sub-state region) were updated using the mid-2020 snapshot. To reduce the volatility in fluctuating characteristics, jobholder variables are held constant between snapshot updates. While the date of birth variable is held constant, the jobholder's age (as derived from date of birth) continues to be updated at the start of a jobholder's birth month each year.

STP records whose jobholder characteristics cannot be determined from STP or the Client Register snapshot are assigned an 'unknown' category for the relevant jobholder characteristic. As persons join the workforce or register with the ATO for the first time, the Client Register snapshot becomes outdated and the number of payroll jobs with an unknown characteristic can increase. Proportions of unknown age and residential geography remain small over time, as they can also be derived from STP data. However, the

proportion of unknown sex (which is only sourced from the Client Register) is expected to increase over time as the snapshot ages. The ABS is currently investigating suitable timing and frequency of future Client Register updates, but expects that the snapshot will be updated on at least an annual basis in these estimates.

For more information on how unknowns can affect the interpretation of estimates, see [Data limitations and revisions \(/methodologies/weekly-payroll-jobs-and-wages-australia-methodology/week-ending-11-september-2021#data-limitations-and-revisions\)](#). (Data components, totals and index calculation).

These estimates are also affected by the dynamic nature and source of data. The impact on accuracy and coherence with other ABS labour statistics are described below.

Accuracy

STP is a dynamic administrative data source, hence these estimates may be subject to the following sources of error:

- Conceptual misalignment - The Australian tax system is purpose-built and complex, and in some cases it is difficult to determine how a particular STP item should be used to describe impact on payroll jobs and wages. While all care is taken, some income items are subject to this type of validity error. Coherence with other sources indicates that this has a low impact on the aggregate series.
- Reporting error - This is likely to be present in both person and business information used. Most reporting errors are unable to be determined or corrected; however, coherence with other similar statistics demonstrates that this has a low impact on the aggregate series.

For further information, see [Data limitations and revisions \(/methodologies/weekly-payroll-jobs-and-wages-australia-methodology/week-ending-11-september-2021#data-limitations-and-revisions\)](#).

Coherence

There are differences between these estimates and similar statistics produced by the ABS. When compared to other ABS sources, the change in payroll jobs and wages paid in these estimates may differ due to differences in the concepts, scope and methodology used. For example, these estimates:

- contain a combination of administrative data collected for taxation purposes from employers, whereas other ABS data sources are compiled for the explicit purpose of

- producing statistics,
- exclude unreported cash in hand payments which may be included in household and business surveys,
- may include information relating to a reference week, rather than a particular point in time,
- are not currently able to be adjusted with respect to seasonality, unlike other Labour Force releases, and
- provide a view of payroll jobs, whereas the Labour Force survey presents a view of employed persons. The difference being those people who hold more than one job at a time (i.e. secondary jobs).

For further information, see [Differences to Labour Force employment statistics \(/methodologies/weekly-payroll-jobs-and-wages-australia-methodology/week-ending-11-september-2021#differences-to-labour-force-employment-statistics\)](https://www.abs.gov.au/methodologies/weekly-payroll-jobs-and-wages-australia-methodology/week-ending-11-september-2021#differences-to-labour-force-employment-statistics).

How data are released

All estimates are presented for weeks ending on a Saturday.

Summary of outputs

Each release contains both payroll jobs and total wages indexes and percentage change movements. Estimates are available at the national, state and territory and [Australian and New Zealand Standard Industry Classification \(ANZSIC\)](https://www.abs.gov.au/ausstats/abs@.nsf/mf/1292.0) (<https://www.abs.gov.au/ausstats/abs@.nsf/mf/1292.0>) division by selected jobholder and employer attributes. Australian Statistical Geography Standard sub-state regions (Statistical Area 4, Statistical Area 3 and Greater Capital City Statistical Area) and ANZSIC subdivision estimates are also updated in each release.

Levels for jobs and wages are not available for release. The payroll jobs index provides a measure of changes in jobs over time since the week ending 14 March 2020. Information on levels for jobs are best sourced from estimates of filled jobs from [Labour Account Australia](https://www.abs.gov.au/statistics/labour/employment-and-unemployment/labour-account-australia/latest-release) (<https://www.abs.gov.au/statistics/labour/employment-and-unemployment/labour-account-australia/latest-release>) and estimates of employed persons from [Labour Force, Australia](https://www.abs.gov.au/statistics/labour/employment-and-unemployment/labour-force-australia/latest-release) (<https://www.abs.gov.au/statistics/labour/employment-and-unemployment/labour-force-australia/latest-release>). More information is included in [Differences to Labour Force employment statistics \(/methodologies/weekly-payroll-jobs-and-wages-australia-methodology/week-ending-11-september-2021#differences-to-labour-force-employment-statistics\)](https://www.abs.gov.au/methodologies/weekly-payroll-jobs-and-wages-australia-methodology/week-ending-11-september-2021#differences-to-labour-force-employment-statistics).

The data underlying these estimates are revised in each release and reflected in percentage change movements and indexes. See [Data limitations and revisions \(/methodologies](https://www.abs.gov.au/methodologies)

[/weekly-payroll-jobs-and-wages-australia-methodology/week-ending-11-september-2021#data-limitations-and-revisions](#)) for more detail.

Time series estimates

The estimates are presented as an original series only. Seasonally adjusted and trend estimates are not yet available. A number of years of data will be required before seasonal patterns can be observed and adjusted for.

The calendarisation and imputation methodologies applied to the estimates account for calendar related variations, such as the number of days in a month, and different payment frequencies.

Privacy and confidentiality

Legislative requirements to ensure privacy and secrecy of this data have been adhered to. In accordance with the Census and Statistics Act 1905, results have been confidentialised to ensure that they are not likely to enable identification of a particular person or organisation.

All personal information is handled in accordance with the Australian Privacy Principles contained in the Privacy Act 1988. For more information, see [ABS Privacy \(https://www.abs.gov.au/websitedbs/d3310114.nsf/home/privacy?opendocument\)](https://www.abs.gov.au/websitedbs/d3310114.nsf/home/privacy?opendocument).

More information

For more information on this methodology email labour.statistics@abs.gov.au (<mailto:labour.statistics@abs.gov.au>).

Methods review

The ABS is continuing to review and improve the methods which support the Weekly Payroll Jobs and Wages series to enhance the quality of estimates. The Methods review section will be a regular feature of the release, as improvements to methods are progressively implemented.

Update to imputation retention

Imputation is used to account for incomplete data and reporting lags and is applied with respect to the time since the last reported payment. Imputation includes the following considerations:

- If an employee has not yet had payment data reported and they have not been flagged for termination, it is assumed that their payment status is consistent with their previous reporting record. The previous calculated daily rate will be imputed for the current

period.

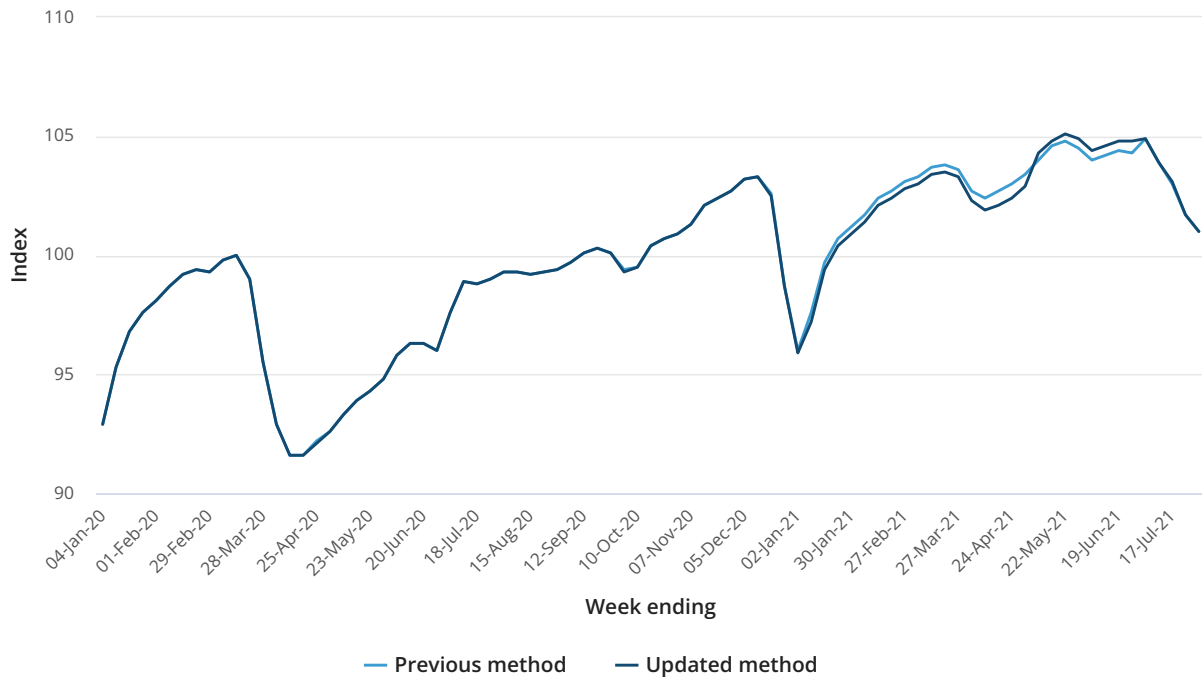
- If an employee has no payment data for a second consecutive pay period, it is assumed that their employment has been terminated. No further forward imputation is applied. Up until this release, imputed data was retained until 8 pay periods had elapsed.

While most employers report via STP at the time of payment, there is a range of employer reporting habits and pay frequencies. These can impact on when reporting can be considered complete for a particular reference period. With the previous 8 pay period imputation retention threshold, there were some inconsistent impacts on the indexes when imputation was removed, depending on whether it related to weekly paid jobs (8 weeks), fortnightly paid jobs (16 weeks) and monthly paid jobs (8 months). ABS analysis showed that imputation was not retained long enough for weekly paid jobs and retained too long for monthly paid jobs.

This release reflects an update to the imputation retention threshold, from 8 pay periods to 16 weeks, for all jobs. Analysis has indicated that STP data are largely complete within the 16 week period.

The following graphs present payroll jobs and wages data as released on 26 August 2021 for the week ending 31 July 2021, using the updated and previous methods.

Payroll jobs index by imputation retention threshold(a)

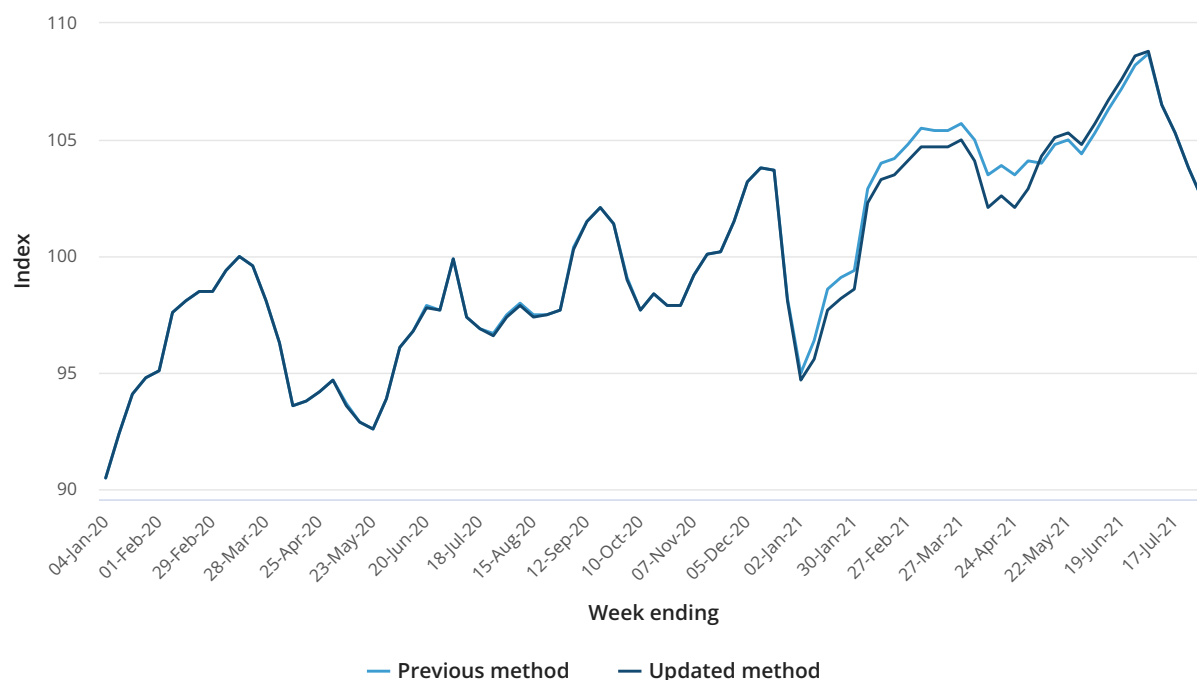


Source: [Weekly Payroll Jobs and Wages, Week ending 31 July 2021 \(/statistics/labour/earnings-and-work-hours/weekly-payroll-jobs-and-wages-australia/week-ending-31-july-2021\)](#).

a. Indexed to the week ending 14 March 2020.

The difference between the two methods and related one-off revisions are greatest over April and May 2021. April sees greater seasonality in both payroll jobs and wages, which imputation can't yet account for, resulting in over-imputation across the period.

Total wages index by imputation retention threshold(a)



Source: [Weekly Payroll Jobs and Wages, Week ending 31 July 2021 \(/statistics/labour/earnings-and-work-hours/weekly-payroll-jobs-and-wages-australia/week-ending-31-july-2021#suspension-of-wages-estimates\)](https://www.abs.gov.au/statistics/labour/earnings-and-work-hours/weekly-payroll-jobs-and-wages-australia/week-ending-31-july-2021#suspension-of-wages-estimates).

a. Indexed to the week ending 14 March 2020.

Among industries, the impact of the update differs due to the dominant pay frequency. For industries dominated by:

- Weekly pay frequencies, imputation is now held longer than it was previously and the index level may lift slightly in earlier reference weeks.
- Monthly pay frequencies (such as Mining and Professional, scientific and technical services). Imputation is now held for a shorter amount of time and may result in a slight drop of the index level, particularly in weeks where imputation was held longer with the previous method.
- Fortnightly pay frequencies (around 54% of total payroll jobs) are unaffected by the updated threshold, as eight pay periods already reflected 16 weeks.
- Quarterly and other pay frequencies are affected by the updated threshold, however these employers represent less than 3.5% of total payroll jobs.

The ABS recommends that analyses of previously published estimates be refreshed with the data from this release.

More information on the dominant pay frequency for each industry can be found in the Imputation section of [How data are processed \(/methodologies/weekly-payroll-jobs-and-wages-australia-methodology/week-ending-11-september-2021#how-data-are-processed\)](#).

Data limitations and revisions

Weekly Payroll Jobs and Wages in Australia estimates are derived from data collected via the STP system, which effectively supports employer reporting obligations and ATO operational requirements through enabled software. However, it is not primarily designed to support the production of statistics and therefore some inherent limitations of the data require specific treatment and result in data revisions between releases.

The weekly change estimates for the most recent weeks of data contain a higher degree of reporting variability and imputation (described further below). The ABS recommends that users exercise caution when focusing on change in the most recent weeks, as these estimates are subject to a greater levels of revision in subsequent releases.

As the compilation of these estimates evolves, reporting patterns sometimes arise which require detailed analysis and treatment. Outcomes from these analyses may result in changes to methodology or revisions to data which will be updated here, as required.

Week on week revisions

Payroll jobs and wages estimates (including percentage change movements and indexes) are revised in each release across the time series. These revisions primarily relate to the receipt of more complete STP data over time, but may also reflect the incorporation of newly available businesses in STP reported data.

Revisions have the greatest impact on the most recently reported information. Over time, as more employer-reported data is received, the size of revisions decreases. To reduce the impact of week on week revisions, the ABS uses historical information to impute the most recent weeks data. The ABS is taking a cautious approach to imputation as factors influencing jobs can occur unexpectedly, for example, the surge in COVID-19 cases in Victoria in July 2020.

Variation in revisions

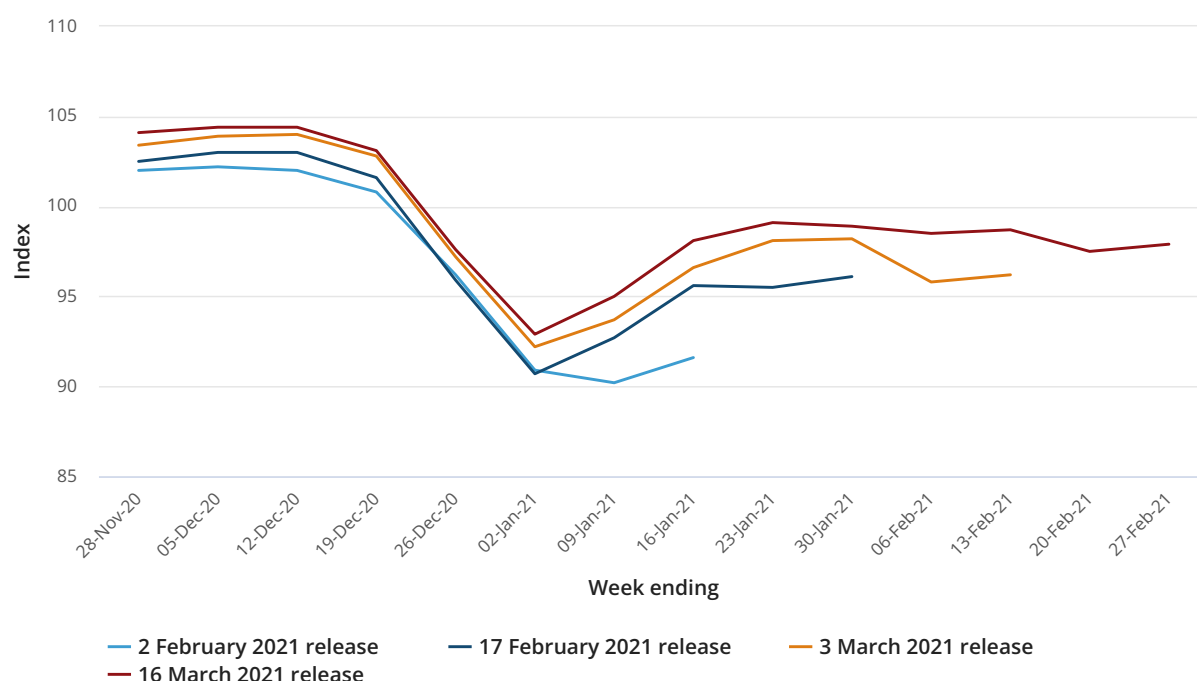
The size of revisions and the period over which they apply can vary between indexes. Some

component indexes are subject to higher than usual levels of revision, over a longer period. For example, the employment size indexes show both a higher incidence and duration of revision. This is most noticeable in the small employers group (those with under 20 employees). The following characteristics of this group contribute to the variation in revision of their estimates:

- higher levels of reporting variability;
- a greater incidence of longer payment periods (such as quarterly); and
- graduated STP onboarding.

The following graph presents data from consecutive releases to highlight the impact of revisions for this cohort (as applied in consecutive releases). The ABS is currently investigating methods to reduce the future level of revisions in this series.

Revision of payroll jobs index for Under 20 employment size, for selected releases



Incorporating new employer reported data

As new employers commence reporting through STP, the ABS determines when the employer appears in the dataset for the first time and distributes the year to date jobs and wages across all past payment periods for the current financial year. This ensures that weekly estimates best reflect change in the labour market over time through payment activities, rather than changes in the uptake of STP reporting by the employers. This approach necessitates revisions across the time series. From the 19 January 2021 release, the method used to backcast data for new reporters was adjusted to ensure that it better reflects when wages were actually paid.

Prior to the 26 August 2021 release, the ABS applied a coverage adjustment to the last week of estimates in each release to account for a delay in new employees appearing in the STP data. Given the additional 7 day lag between the reference and release dates, analysis has determined this adjustment is no longer required.

Reporting variability

Wage estimates are subject to a higher degree of reporting variability (due to seasonal variation in payments, changes in working hours and overtime) and revisions than the payroll jobs estimates. While the ABS accounts for employees being paid with different frequencies (weekly, fortnightly etc.) there are points in the year when additional reporting activity is more common such as the end of financial year, which may flow through to published estimates.

May 2020

Reduced wages which are observed through May 2020 (and are more pronounced in COVID-19 impacted industries) may reflect a combination of:

- reduced wages being paid by COVID-19 affected employers, who may also have reduced hours over the period - particularly for jobs that weren't eligible for JobKeeper support,
- seasonal changes in wages (including bonus payments), and
- potential payroll reporting changes for some employers during May 2020. This could include changes to payment frequency or payment categorisation, both of which could affect the imputation methodology and how payments are effectively apportioned onto an accruals basis.

The first 'JobKeeper' payments were received by employers in the first week of May 2020. JobKeeper monies paid to employees through STP-enabled payrolls are incorporated into the wages index. Further information on the treatment of JobKeeper in ABS economic statistics can be found in [Economic measurement during COVID-19: Selected issues in the Economic Accounts, May 2020 \(https://www.abs.gov.au/ausstats/abs@.nsf/mf/5261.0?OpenDocument\)](https://www.abs.gov.au/ausstats/abs@.nsf/mf/5261.0?OpenDocument).

Re-submission of historical pay periods

The dynamic nature of STP data can result in revisions to payroll jobs and wages indexes, caused by the re-submission of payroll data for historical pay periods (including prior financial years) by STP-enabled employers. When re-submission results in an update to payroll jobs and wages levels at the index base reference period (of 14 March 2020), a revision across the index time series in component indexes may be observed.

End of financial year

Payroll jobs and wages data during June and July see a greater variation in employer reporting, due to:

- employers finalising their year to date employee earnings information,
- a reset of financial year in payroll systems, and
- end of financial year bonus and commission payments.

These factors can translate to a higher variation in estimates over this period, as well as revisions, particularly in wages estimates.

In addition, June 2021 saw the conclusion of many STP reporting concessions which have contributed additional index movement around the end of financial year, particularly for smaller employers.

Seasonality

These estimates are presented as an 'original' data series, and do not include seasonally adjusted or trend data time series found in other labour statistics releases (e.g. Labour Force).

STP is a relatively new program (and data source). Generally, three to five years of data are required before good seasonally adjusted data can be produced, hence it is not yet possible to produce a seasonally adjusted series (with seasonal elements removed) or trend series (with both the seasonal elements and irregular fluctuations removed). This means that variations in these estimates may reflect seasonal changes in the labour market in addition to COVID-19 related impacts in the economy.

Seasonal characteristics which may be observed include effects seen:

- around national public holidays, where increases in the total wages series are seen in industries where penalty rates are paid;
- ahead of the Christmas period, where considerable labour market activity in a range of industries increases payroll jobs and wages,
- across school holiday periods, where some industries experience lower business activity.

This is particularly pronounced in the holiday period after Christmas, resulting in a decrease in the national payroll jobs and total wages series,

- in industries where periodic bonuses are paid. While bonuses may be paid at any time during the year, they often have an industry pattern. For example, the effect of bonus payments are seen in March and September in both the Mining and Financial and insurance services industries total wages series.

As seasonal characteristics are further identified in these data, this list will be expanded.

Agriculture, forestry and fishing industry

The Agriculture, forestry and fishing industry is subject to higher rates of week-on-week change in the payroll jobs and wages series than other industries. This is primarily due to greater peaks and troughs caused by seasonal factors that affect employment such as harvesting or shearing. Employers in this industry have also had STP reporting concessions which permit them to report on a less frequent basis than each pay event. These concessions were due to cease at the end of June 2021.

Data components, totals and index calculation

STP data is linked to other information held by the ABS to derive demographic and business characteristics such as age group, sex, geography and industry. If a specific characteristic cannot be linked or derived, and does not appear on the STP file, it is assigned an 'unknown' category (for that characteristic).

Records with 'unknown' characteristics are included in the calculation of index totals for that category. As 'total' and 'component' indexes are calculated independently, the inclusion of records with 'unknown' characteristics in a 'total' index can result in independent movement from 'component' indexes. For example, the 'total' index of Persons is calculated from the combined levels of Males, Females and 'unknown' (persons for whom a Male/Female sex cannot be determined). As a result, the Persons index can move independently from Male and Female indexes, which do not include 'unknown' persons. While the proportion of unknown characteristics vary by characteristic, their impact will be compounded in components of finer indexes (such as in State and territory by sex by age group).

Hours worked, job attachment and employment status

STP data does not include information on hours worked or hours paid for. Analysis of monthly hours worked can be found in [Labour Force, Australia \(https://www.abs.gov.au/statistics/labour/employment-and-unemployment/labour-force-australia/latest-release\)](https://www.abs.gov.au/statistics/labour/employment-and-unemployment/labour-force-australia/latest-release), and [Labour Force, Australia, Detailed \(https://www.abs.gov.au/statistics/labour](https://www.abs.gov.au/statistics/labour)

[/employment-and-unemployment/labour-force-australia-detailed/latest-release](#)). STP data are also unable to account for job attachment where a payment has not been made, where a jobholder was temporarily stood down without pay.

The estimates do not include information on the employment status of employees, i.e. full time or part time. This will be explored as part of ongoing work between the ABS and the ATO. In the interim, this information is also available within the suite of Labour Force releases.

Acknowledgement of source

STP data is supplied by the ATO to the ABS under the Taxation Administration Act 1953, which requires that such data is only used for the purposes of administering the Census and Statistics Act 1905. Any discussion of data limitations or weaknesses is made within the context of using the data for statistical purposes, and is not related to the ability of the data to support the ATO's core operational requirements.

These estimates also include Australian Business Register (ABR) data supplied by the Registrar to the ABS under A New Tax System (Australian Business Number) Act 1999, which requires that such data is only used for the purpose of carrying out functions of the ABS. Any discussion of data limitations or weaknesses is in the context of using the data for statistical purposes, and is not related to the ability of the data to support the ABR's core operational requirements.

The ABS would like to acknowledge the critical support from the Australian Taxation Office (ATO) in enabling the ABS to produce these statistics.

Differences to labour force employment statistics

The Weekly Payroll Jobs and Wages in Australia indexes give a complementary insight to Labour Force statistics on employment and unemployment, which provide a longstanding and comprehensive view of the Labour market.

The two releases generally show similar national changes in jobs and employment over time, however at the state/territory and industry levels, the differences can be more pronounced. The differences in concepts, scope and methodology used to produce these statistics can affect their interpretation as economic measures. Some factors that explain differences at the state/territory and industry levels include:

- Real world factors - scope of STP reporting, multiple jobholding and seasonality, and

- Measurement factors - sampling variability, reporting variability and classification variability

The following key differences should be considered when comparing these statistics:

	Weekly Payroll Jobs and Wages in Australia	Labour Force statistics
Focus of the statistics	Jobs.	People.
Coverage	<p>Around 10 million payroll jobs for which a payment was reported to the ATO through STP.(a)</p> <p>99% of employers with 20 or more employees currently report through STP and over 75% of smaller employers (expected to be closer to 100% after July 2021, when the ATO removed exemptions and reporting concessions).</p> <p>Coverage has increased steadily from January 2020 as more employers start reporting through STP.</p>	<p>All usually resident civilian people aged 15 and over (around 21 million people, of whom 13 million are employed).</p> <p>Statistics are based on a large survey sample of around 50,000 people responding every month.</p>
Revisions	<p>Revised every release as payroll periods are completed (with imputed data replaced with actual data) and as coverage increases. This ensures comparability over time.</p> <p>Revised as jobholder and employer characteristics are periodically updated (currently annually).(b)</p>	<p>Small revisions every 3 months, aligned with new population statistics.</p>
Types of employment	<p>Employee jobs who are paid through a STP-reported payroll.</p> <p>Also includes a small number of jobs for non-employees who are also paid through STP-reported payrolls. Payroll jobs for which a payment was reported to the ATO through STP.</p>	<p>All employed people, including: Employees (including Owner managers of incorporated enterprises); Owner managers of unincorporated enterprises; Contributing family workers.</p>
Whether paid	<p>Only includes payroll jobs for which a payment was reported to the ATO through STP or there is an established payment pattern.</p>	<p>Includes all employed people who were paid or who had a job but weren't paid (on unpaid leave, temporarily stood down without pay, etc.).</p>

	Weekly Payroll Jobs and Wages in Australia	Labour Force statistics
Multiple job holding	<p>Each job is counted separately, irrespective of whether it is worked by a multiple jobholder. People who work multiple jobs may be counted multiple times.</p> <p>Industry is identified for each job, not just the main job and the level of multiple jobholding can vary between industries.</p>	<p>Each person is only counted once, and job characteristics (other than hours) relate to a person's main job.</p> <p>Around 6% of employed people are multiple jobholders, particularly young people.</p>
Location	Residence of the jobholder, based on address held by the ATO.	Place of usual residence of people at the time of the survey.
Time series	Original index series. No seasonally adjusted or trend series are available yet.	Original and seasonally adjusted (trend is currently suspended, during the COVID-19 period).

- a. A compositional breakdown of payroll jobs can be found in [Distribution of jobholder and employer characteristics \(/articles/distribution-jobholder-and-employer-characteristics/\)](/articles/distribution-jobholder-and-employer-characteristics/).
- b. The update of jobholder and employer characteristics can be found in [How data are processed \(/methodologies/weekly-payroll-jobs-and-wages-australia-methodology/week-ending-11-september-2021#how-data-are-processed/\)](/methodologies/weekly-payroll-jobs-and-wages-australia-methodology/week-ending-11-september-2021#how-data-are-processed/).

Labour Force analysis of employment versus payroll jobs up to August 2020 can be found in [Strong employment growth for non-employees \(/articles/strong-employment-growth-non-employees/\)](/articles/strong-employment-growth-non-employees/). More information on the differences between Weekly Payroll Jobs and Wages estimates and similar ABS statistics are detailed in the Coherence section of [How data are processed \(/methodologies/weekly-payroll-jobs-and-wages-australia-methodology/week-ending-11-september-2021#how-data-are-processed/\)](/methodologies/weekly-payroll-jobs-and-wages-australia-methodology/week-ending-11-september-2021#how-data-are-processed/).

History of change

A timeline of recently implemented methodological changes are listed below for easy reference.

By release date

Week ending 19 June 2021

- [Update of employer characteristics \(/methodologies/weekly-payroll-jobs-and-wages-australia-methodology/week-ending-19-june-2021#methods-review/\)](/methodologies/weekly-payroll-jobs-and-wages-australia-methodology/week-ending-19-june-2021#methods-review/) - ABS Business Register snapshot update to industry and employment size variables

Week ending 10 April 2021

- [Historical imputation \(/methodologies/weekly-payroll-jobs-and-wages-australia-methodology/week-ending-10-april-2021#how-data-are-processed\)](/methodologies/weekly-payroll-jobs-and-wages-australia-methodology/week-ending-10-april-2021#how-data-are-processed) - period over which historical imputation is removed for terminated employees changed from 3 to 8 pay periods.

Week ending 27 March 2021

- [Update of jobholder characteristics \(/methodologies/weekly-payroll-jobs-and-wages-australia-methodology/week-ending-27-march-2021#methods-review\)](/methodologies/weekly-payroll-jobs-and-wages-australia-methodology/week-ending-27-march-2021#methods-review) - Client Register snapshot update to sex, age and geography variables

Week ending 30 January 2021

- [Imputation update \(/methodologies/weekly-payroll-jobs-and-wages-australia-methodology/week-ending-30-january-2021#methods-review\)](/methodologies/weekly-payroll-jobs-and-wages-australia-methodology/week-ending-30-january-2021#methods-review) - to deliver a reduced magnitude of future revisions, particularly in the most recent week's data

Week ending 16 January 2021

- [Age derivation update \(/methodologies/weekly-payroll-jobs-and-wages-australia-methodology/week-ending-16-january-2021#data-limitations-and-revisions\)](/methodologies/weekly-payroll-jobs-and-wages-australia-methodology/week-ending-16-january-2021#data-limitations-and-revisions) - a person is aged at the start of their birthday month instead of redefining age each reference week

Week ending 2 January 2021

- Update of characteristics variables - Employers with unknown industry included in estimates, as noted in [Data limitations and revisions \(/methodologies/weekly-payroll-jobs-and-wages-australia-methodology/week-ending-2-january-2021#data-limitations-and-revisions\)](/methodologies/weekly-payroll-jobs-and-wages-australia-methodology/week-ending-2-january-2021#data-limitations-and-revisions)

Week ending 14 November 2020

- [Week on week revisions \(/methodologies/weekly-payroll-jobs-and-wages-australia-methodology/week-ending-14-november-2020#data-limitations-and-revisions\)](/methodologies/weekly-payroll-jobs-and-wages-australia-methodology/week-ending-14-november-2020#data-limitations-and-revisions) - persons aged under 15 years excluded from the under 20s age group

Glossary

Show all

Accrual basis

Recording wages when they are earned, accrued or incurred regardless of when payment is made or received.

Australian Bureau of Statistics Business Register

A register of all Australian businesses and organisations maintained by the Australian Bureau of Statistics (ABS) for the purpose of producing statistical frames and business demography outputs. It contains identifying and classificatory data for each business and organisation.

Information to populate the ABS Business Register is largely sourced from the Australian Business Register.

The ABS Business Register consists of two subpopulations, the profiled population and the non-profiled population. The ABS Business Register uses an economic units model to describe the characteristics of businesses and the structural relationships between related businesses.

Australian Business Number

A unique identifier. To be entitled to an Australian Business Number (ABN), an organisation must be one or more of the following:

- a company registered under the Corporations Act 2001
- an entity carrying on an enterprise in Australia
- a government entity
- a non-profit sub-entity for Goods and Services Tax purposes
- a superannuation fund.

A non-resident entity may be entitled to an ABN if they are carrying on an enterprise in Australia and/or, in the course of carrying on an enterprise, the entity makes sales that are connected with Australia.

Australian Business Register

The data store containing details about businesses and organisations that have registered for an Australian Business Number. More information can be found on the [ABR website \(https://abr.gov.au/\)](https://abr.gov.au/).

Australian Tax Office person-level Client Register

A register of persons that have interacted with the Australian Tax Office (ATO) and have been issued with an Australian Tax File Number (TFN). The ATO person-level Client Register comprises demographic information such as sex, date of birth, and residential address.

Cash basis

Recording the wage payment in the pay period when the payment was received by the

employee.

Commencement and termination dates

Commencement and termination dates associated with each job as reported through Single Touch Payroll.

Employee

Persons who work for a private or public sector employer, where the employee has received payment in the reference week through Single Touch Payroll (STP) enabled software and reported to the Australian Taxation Office (ATO).

Employer

An organisation with an Australian Business Number that provides employment income to one or more people, and reports through the ATO STP system.

Geography

Based on residential address as sourced from either the ATO Client Register or STP data. See also 'Greater Capital City Statistical Area' and 'Statistical area' entries. For more information, see the [Australian Statistical Geography Standard \(ASGS\): Volume 1 – Main Structure and Greater Capital City Statistical Areas \(https://www.abs.gov.au/AUSSTATS/abs@.nsf/ProductsbyCatalogue/871A7FF33DF471FBCA257801000DCD5F?OpenDocument\)](https://www.abs.gov.au/AUSSTATS/abs@.nsf/ProductsbyCatalogue/871A7FF33DF471FBCA257801000DCD5F?OpenDocument).

Greater Capital City Statistical Area

Geographical areas built from Statistical Areas Level 4 (SA4), designed to represent the functional extent of each of the eight State and Territory capital cities. Greater capital city statistical areas (GCCSA) are presented with the 'rest of state' region to cover the whole of Australia without gaps or overlaps. The GCCSA is named according to the city it represents, for example, Greater Sydney. The remainder of the state or territory is named rest of state/territory, for example, Rest of New South Wales (NSW).

Industry

A homogenous grouping of economic activities undertaken to produce goods and services. The [Australian and New Zealand Standard Industrial Classification \(https://www.abs.gov.au/ausstats/abs@.nsf/mf/1292.0\)](https://www.abs.gov.au/ausstats/abs@.nsf/mf/1292.0) is used to classify an entity to an industry based on its dominant activity.

Industry division

The broadest grouping of industries within the Australian and New Zealand Standard Industrial Classification. The main purpose of the industry division level is to provide a

limited number of categories, which give a broad overall picture of the economy. There are 19 mutually exclusive divisions. For more information see the [Australian and New Zealand Standard Industrial Classification \(https://www.abs.gov.au/ausstats/abs@.nsf/mf/1292.0\)](https://www.abs.gov.au/ausstats/abs@.nsf/mf/1292.0).

Industry subdivision

The second broadest grouping of industries within the Australian and New Zealand Statistical Industrial Classification. Industry subdivisions are built up from the industry groups which, in turn, are built up from industry classes. For more information see the [Australian and New Zealand Standard Industrial Classification \(https://www.abs.gov.au/ausstats/abs@.nsf/mf/1292.0\)](https://www.abs.gov.au/ausstats/abs@.nsf/mf/1292.0).

Job

See payroll job.

Not available (NA)

Statistic is not available. This can be to protect the confidentiality of data providers or to prevent misinterpretation of statistics due to poor quality.

Owner-manager of unincorporated enterprises (OMUE)

A person who operates their own unincorporated enterprise, which does not possess a separate legal identity to that of its owner(s), or engages independently in a profession or trade.

OMUEs can also be referred to as self-employed. Owner managers of unincorporated enterprises are not included in these estimates as they are not in scope of STP-enabled software reporting to the ATO.

Unincorporated enterprises are further defined in the Type of Legal Organisation (TOLO) classification section of the [Standard Economic Sector Classifications of Australia \(SESCA\) release \(/statistics/classifications/standard-economic-sector-classifications-australia-sesca/latest-release#type-of-legal-organisation-tolo-classification\)](https://statistics.classifications/standard-economic-sector-classifications-australia-sesca/latest-release#type-of-legal-organisation-tolo-classification).

Payroll job

A payroll job is a relationship between an employee and their employing enterprise, where the employee is paid in the reference week through STP-enabled payroll or accounting software and reported to the ATO. Where an employee is paid other than weekly, the established payment pattern is used to identify jobs in weeks outside the payment week.

Public/Private sector

The Public/Private classification divides the economy into two sectors: Public (government

units and units controlled by government); and Private (all other units). For more information, see the [Standard Economic Sector Classifications of Australia \(SESCA\) \(/statistics/classifications/standard-economic-sector-classifications-australia-sesca/latest-release#\)](https://statistics/classifications/standard-economic-sector-classifications-australia-sesca/latest-release#) release.

Single Touch Payroll

The Single Touch Payroll (STP) system sends taxation and superannuation information from a business' STP-enabled payroll or accounting software to the ATO as a business runs its payroll.

Sex

Self reported sex (i.e. male/ female) of a person as reported through the ATO taxation system. Categories other than male or female are not published separately in this release but are included in published totals.

Statistical area level 3

Statistical area level 3 (SA3) regions are designed to provide a regional breakdown of Australia. They generally have a population of between 30,000 and 130,000 people. In regional areas, SA3s represent the area serviced by regional cities that have a population over 20,000 people. In the major cities, SA3s represent the area serviced by a major transport and commercial hub. They often closely align to large urban Local Government Areas (e.g. Gladstone, Geelong). In outer regional and remote areas, SA3s represent areas which are widely recognised as having a distinct identity and similar social and economic characteristics.

Statistical area level 4

Statistical area level 4 (SA4) regions are specifically designed to reflect labour markets within each state and territory within population limits. In regional areas, SA4s tend to have lower populations (100,000 to 300,000), while in metropolitan areas, SA4s tend to have larger populations (300,000 to 500,000).

Type of activity unit

The statistical unit for more significant and diverse businesses in the profiled population. A type of activity unit (TAU) is a constructed unit that can practically group and report on homogenous production activities at the industry sub-division level.

In this publication, the TAU is used to represent employers in the profiled population.

Type of legal organisation

All legal entities on the ABS Business Register are classified according to their type of legal organisation, of which there are three types:

- incorporated private sector entities
- unincorporated private sector entities
- public sector entities.

The type of legal organisation indicates whether a business is part of the private or public sector and the type of ownership structure. For more information see the [Standard Economic Sector Classifications of Australia \(SESCA\) release \(/statistics/classifications/standard-economic-sector-classifications-australia-sesca/latest-release#type-of-legal-organisation-to-classification\)](https://statistics.classifications/standard-economic-sector-classifications-australia-sesca/latest-release#type-of-legal-organisation-to-classification).

Wages

Wages include salary payments and allowances, labour hire payments and foreign income, as well as the value of payments in kind (where a fringe benefit amount is recorded). Bonuses are typically included where they are reported in the same field as normal payments. Wages are calculated as gross amounts, prior to taxation and deductions.

Wages exclude payments to employee's superannuation as well as severance and termination payments. Wages are only available for payroll jobs and do not include income from own businesses or other sources.

Abbreviations

ABN	Australian Business Number
ABR	Australian Business Register
ANZSIC	Australian and New Zealand Standard Industrial Classification
ASGS	Australian Statistical Geography Standard
ATO	Australian Taxation Office
FBT	fringe benefits tax
GCCSA	Greater Capital City Statistical Area
NA	Not Available
pts	Index points
SA3	Statistical Area Level 3
SA4	Statistical Area Level 4
STP	Single Touch Payroll
TFN	Tax File Number